ElliottWood

Document Control			
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Date - 20.09.24		Signature JDi	
Checked by TKe		Approved by TK	
Signature	The	Signature	The

Date: 20-09-2024

Aim

Kingsway House SuDS Comment Responses To address the comments made by Camden Council on the Sustainable Drainage Strategy Report KGH-EWP-ZZ-XX-RP-C-000001, dated 19.07.24 submitted to support the planning application for the re-development of Kingsway House.

Summary

The below requests and *recommendations* were received from Camden on 10.09.24. Responses to each comment and recommendation are made in red.

Review Summary:

This application has not sufficiently demonstrated the use of the London Plan's drainage hierarchy and is proposing the following key items:

- Type of development: Change of use from office to apartment hotel of 3,595sqm
- **Flood risk:** Not on a previously flooded street or in a Local Flood Risk Zone but medium risk of surface water flooding.
- Types of conveyance / attenuation features: Blue and green roofs
- Greenfield runoff rate: 0.5
- Runoff rate restriction (I/s): 10.4
- Runoff attenuation volume (m³): 6.1 or 6.8 tbc
- Maintenance plan: Provided but maintenance owner not named.



Recommendation and requests:

We require more information and improved proposals before recommending approval of the application for the following reasons:

- 1) The proposed runoff rate is higher than the greenfield rate and the applicant has not provided sufficient justification to demonstrate that the runoff rate has been restricted to as close as practicable to the greenfield rate in order to comply with Defra's Non-technical standard S3. Shows that the proposed runoff rate has been restricted as close as possible to the greenfield runoff rate, and if not equal to the greenfield runoff rate provides sufficient justification as to why the proposed rate has been reduced as far as possible. Restricting the run off rate further would require a significant increase in surface water attenuation. At present, given the nature of the development (the building occupies the whole site) we are utilising all accessible flat space at roof level to provide blue roof storage, a sustainable method of water storage and discharge. If we were to provide further means of attenuation, it would need to be located below basement slab in the form of a concrete tank which would require a pump station to discharge surface water to the existing sewer. Adding a pump would increase maintenance requirements and potentially lead to an increase in flood risk within the basement. As stated in Defra's Non-technical standard S12, pumping should be seen as a last resort if drainage via gravity is not reasonably practicable.
- 2) The applicant has not provided the greenfield runoff volume nor the existing runoff volume in order to confirm compliance with Non-technical standards S5 and S6. Provides the greenfield runoff volume and the existing runoff volume in order to be compared to the proposed runoff volume (and clarifies if this Blue roof: 6.1 (SuDS Report, p27/38) Or Blue roof: 6.8 (SuDS Report, p30/38). The greenfield runoff volume is now provided. The blue roof volume is 6.1m³ as per the blue roof calculations.

Rural Runoff Ca	alculator				— 🗆 X
🗿 🛄 🐹					
	Greenfield Volu	ume			
Micro Drainage	Greenfield Ru	unoff Volume Input			Results
orentage	Rainfall Model	FSR Rainfall 🗸	Return Period (Years)	100	PR%
			Storm Duration (mins)	360	34.66
	Region	England and Wales 🗸	Area (ha)	0.040	Greenfield Runoff Volume (m³)
	Мар	M5-60 (mm) 20.700	SAAR (mm)	600	8.584
	i and it is a second se	Ratio R 0.442	CWI	87.000	
			Urban	0.750	
	Areal Redu	uction Factor 1.00	SPR	30.000	
IH 124				Calculate	
ICP SUDS					
ADAS 345					
FEH					
ReFH2					
Greenfield Volume					
Greenfield Volume (ReFH2)					
				OK	Cancel Help
		Select required Ra	infall Model from the list		

- 3) The applicant has not provided any calculations to demonstrate no flooding on site for the 1 in 30 year or the 1 in 100 year event in order to demonstrate compliance with Non-technical standards S7 and S8. Provides calculations to demonstrate no flooding on site in the 1 in 30 year event and 1 in 100 year event. Microdrainage calculations have now been attached (refer to Appendix A) showing no flooding for all events up to and including the 1 in 100 year +40% climate change.
- 4) The applicant should provide details of how exceedance flows will be managed in order to comply with Non-technical standards S9. Demonstrates how exceedance flows will be managed on site so as not to increase flood risk. Drawing 2230217-EWP-ZZ-00-DR-C-12001 in Appendix B shows exceedance flows. The building FFLs have been set at a level higher than the surrounding footways. This means that any exceedance flows will drain away from the building thresholds and will be captured by the existing highway drainage in Great Queen Street, Kingsway and Parker Street.

5) The applicant has not provided details of the owner of the maintenance of the drainage features. Provides details of who will be responsible for maintenance of the drainage features. It shall be the responsibility of the building management company to ensure maintenance of the drainage system is carried out as per the maintenance schedule. At this stage, there is no information on the building management company.

Conclusion

The proposed drainage strategy seeks to reduce the surface water discharge rate as far is as reasonably practicable. The opportunity to implement SuDS across the scheme is limited due to the extent of the development. It is proposed to utilise blue roofs across the accessible flat roof areas. The remaining areas of the roof is unusable due to the mansard proposal and plan layout. As outlined in the response to Comment 1, the surface water discharge rate could be reduced further by introducing a tank below basement slab with a pump station. However, this would increase the basement flood risk, increase drainage maintenance and be less sustainable. It is therefore considered that it would be more detrimental to propose the pumped option as opposed to the blue roof proposal.

Appendix A – MicroDrainage Calculations

Elliott Wood Partnership LTD		Page 1
241 The Broadway	Kingsway House	
London	Blue Roof Calculation	ns
SW19 1SD		Micro
Date 20/09/2024	Designed by JDi	Drainag
File Blue Roof Calcs.MDX	Checked by	Diamay
Innovyze	Network 2020.1.3	
Des	<u>IGN by the Modified Ratio</u> ign Criteria for Storm	
Pipe Sizes	STANDARD Manhole Sizes STAND	ARD
	fall Model - England and Wale	
Return Period (yea		PIMP (%) 100 Climate Change (%) 0
		Backdrop Height (m) 0.200
Maximum Rainfall (mm		Backdrop Height (m) 1.500
Maximum Time of Concentration (m.		-
Foul Sewage (1/s. Volumetric Runoff Co		to Design only (m/s) 1.00 r Optimisation (1:X) 500
De	signed with Level Soffits	
Netwo	rk Design Table for Storm	
PN Length Fall Slope I.Area		DIA Section Type Auto
(m) (m) (1:X) (ha)	(mins) Flow (l/s) (mm) SECT	(mm) Design
1.000 1.030 0.010 103.0 0.006	5 00 0 0 600 0	100 Pipe/Conduit 🔒

	0.996 0.0 6.451 1.0				0.0 0.600 0.0 0.600				
2.001	1.323 0.0 1.040 0.0 9.790 1.0	10 104.0	0.000	0.00	0.0 0.600 0.0 0.600 0.0 0.600	0	100	Pipe/Conduit	ē

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)		Add Flow (l/s)	Vel (m/s)	Cap (1/s)	Flow (1/s)	
1.000 1.001 1.002	50.00 50.00 50.00	5.04	49.700 49.690 21.000	0.006 0.006 0.006	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.76 0.77 3.06	5.9 6.1 24.1	0.8 0.8 0.8	
2.000 2.001 2.002	50.00 50.00 50.00	5.06	49.700 49.690 21.000	0.006 0.006 0.006	0.0 0.0 0.0	0.0 0.0 0.0	0.0 0.0 0.0	0.67 0.75 2.48	5.2 5.9 19.5	0.9 0.9 0.9	

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Elliott Wood Partnership LTD		Page 2
241 The Broadway	Kingsway House	
London	Blue Roof Calculations	
SW19 1SD		Micro
Date 20/09/2024	Designed by JDi	
File Blue Roof Calcs.MDX	Checked by	Drainage
Innovyze	Network 2020.1.3	
Area	Summary for Storm	
Pipe PIMP PIMP PI Number Type Name (IMP Gross Imp. Pipe Total %) Area (ha) Area (ha) (ha)	
1.000 User - 1 1.001 1	.00 0.006 0.006 0.006 .00 0.000 0.000 0.000	
1.001 1		
2.000 User - 1		
2.002	Total Total Total	
	0.012 0.012 0.012	
Free Flowing	Outfall Details for Storm	
	C. Level I. Level Min D,L W	
Pipe Number Name	(m) (m) I. Level (mm) (mm) (m)	
	(11)	
1.002	22.000 20.000 0.000 0 0	
Free Flowing	Outfall Details for Storm	
	C. Level I. Level Min D,L W	
Pipe Number Name	(m) (m) I. Level (mm) (mm)	
	(m)	
2.002	22.000 20.000 0.000 0 0	
Simulati	<u>on Criteria for Storm</u>	
Valumatoria Dunaff Caaff	0.750 Additional Flow - % of Total Fl	~~ 0 000
Areal Reduction Factor		
Hot Start (mins)		2
	0 Flow per Person per Day (1/per/da	
Manhole Headloss Coeff (Global)		-
Foul Sewage per hectare (1/s)		
Number of Input Hydrogr	aphs 0 Number of Storage Structures 2	
	rols 2 Number of Time/Area Diagrams 0	
Number of Offline Cont	rols 0 Number of Real Time Controls 0	
Synthet	ic Rainfall Details	
Rainfall Model	FSR Profile Type Sum	mer
Return Period (years)	100 Cv (Summer) 0.	
	and and Wales Cv (Summer) 0.	
M5-60 (mm)	20.700 Storm Duration (mins)	
Ratio R	0.441	
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Elliott Wood Partnership LTD		Page 3
241 The Broadway	Kingsway House	
London	Blue Roof Calculations	
SW19 1SD		Micro
Date 20/09/2024	Designed by JDi	Drainage
File Blue Roof Calcs.MDX	Checked by	Diamage
Innovyze	Network 2020.1.3	

Online Controls for Storm

Orifice Manhole: 2, DS/PN: 1.001, Volume (m³): 0.0

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 49.690

Orifice Manhole: 5, DS/PN: 2.001, Volume (m³): 0.0

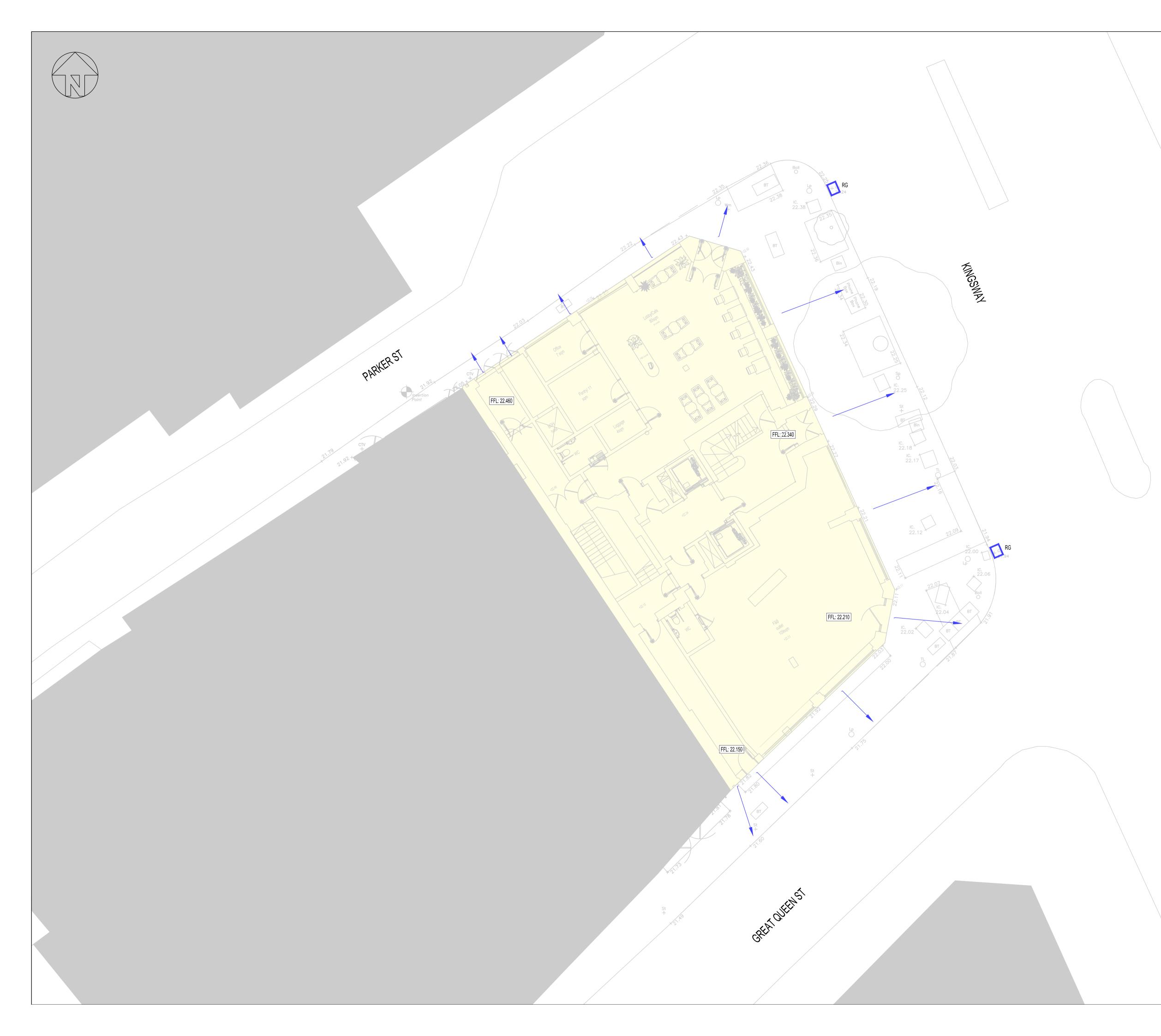
Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 49.690

Elliott Wood Partnership LTD		Page 4
241 The Broadway	Kingsway House	
London	Blue Roof Calculations	
SW19 1SD		Micco
Date 20/09/2024	Designed by JDi	— Micro
File Blue Roof Calcs.MDX	Checked by	Drainage
Innovyze	Network 2020.1.3	
Stora	<u>ge Structures for Storm</u>	
Collular Sto	Trace Marhola, 1 DS/DN, 1 000	
	prage Manhole: 1, DS/PN: 1.000	
Infiltration Coefficie	nvert Level (m) 49.700 Safety Factor ent Base (m/hr) 0.00000 Porosity (ent Side (m/hr) 0.00000	
Depth (m) Area (m²) Inf.	Area (m ²) Depth (m) Area (m ²) Inf. Are	ea (m²)
0.000 32.0	0.0 0.109 0.0	0.0
0.108 32.0	0.0	
Cellular Sto	prage Manhole: 4, DS/PN: 2.000	
	nvert Level (m) 49.700 Safety Factor	
	ent Base (m/hr) 0.00000 Porosity (ent Side (m/hr) 0.00000	1.95
Depth (m) Area (m²) Inf.	Area (m ²) Depth (m) Area (m ²) Inf. Are	ea (m²)
0.000 32.0	0.0 0.109 0.0	0.0
0.108 32.0	0.0	
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w19 1SD						-		Micco
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ile Blue Roo		ADX.		necked by	-			Drainac
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IIIOvyze			110	ECWOIK 20	20.1.5			
<u>0 year Retu</u>	rn Period	Summar	-			y Maxi	imum Leve	el (Rank 1
			<u>f</u>	or Storm				
				ation Crit				
1	Areal Reduc	tion Fact	tor 1.0	00 Addit	ional Flow	- % of	Total Flo	ow 0.000
	Hot S Hot Start	tart (min	ns) mm)	0 M	IADD Factor		/ha Storag oeffiecien	
		ff (Globa	al) 0.5	00 Flow pe	er Person pe			
					» of 0+	0 0	tures 0	
	Number of	Online	Control	s 2 Number	r of Storag r of Time/A	rea Dia	agrams O	
	Number of				r of Real T	ıme Cor	ntrols 0	
	Rainfa	<u>Sy</u> all Model		<u>Rainfall</u>	<u>Details</u> SR Rati	OR 0 4	442	
	I G T I I C				es Cv (Summ			
	M5	5-60 (mm)	-		00 Cv (Wint			
Mar	gin for Flo	ood Risk	Warninc	g (mm)			300.	0
	tv				Second Inc	rement		
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		11	iertra s	latus			01	N
		Profile	(s)			Summer	and Winte	r
	Duration		. ,	30, 60, 12	20, 240, 36			
Ret	urn Period	n(s) (mir (s) (year	ns) 15, ns)	30, 60, 12			960, 144 30, 10	0 0
Ret	urn Period	n(s) (mir	ns) 15, ns)	30, 60, 12			960, 144	0 0
	urn Period Climate	n(s) (mir (s) (year Change ((%) (%)		20, 240, 36	0, 480,	960, 144 30, 10 0, 4	0 0 Water
Ret US/MH PN Name	urn Period Climate	n(s) (mir (s) (year Change (Return C	(%) 15, (%) Climate		20, 240, 36 First (Y)	0, 480,	960, 144 30, 100 0, 40 (Z) Overfl	0 0 Water ow Level
US/MH PN Name 1.000 1	Climate Storm 60 Winter	n(s) (mir (s) (year Change (Return C Period (30	s) 15, s) %) Climate Change +0%	First (X)	20, 240, 36 First (Y)	0, 480, First	960, 144 30, 100 0, 40 (Z) Overfl	Water Level (m) 49.734
US/MH PN Name 1.000 1 1.001 2	Climate Storm 60 Winter 60 Winter	n(s) (mir (s) (year Change (Return C Period (30 30	<pre>climate</pre>	First (X)	20, 240, 36 First (Y)	0, 480, First	960, 144 30, 100 0, 40 (Z) Overfl	0 0 0 Water Level (m) 49.734 49.739
US/MH PN Name 1.000 1 1.001 2 1.002 3	Climate Climate Storm 60 Winter 60 Winter 60 Winter	n(s) (mir (s) (year Change (Return C Period (30 30 30	<pre>climate +0%</pre>	First (X)	20, 240, 36 First (Y)	0, 480, First	960, 144 30, 100 0, 40 (Z) Overfl	0 0 0 0 Water Level (m) 49.734 49.739 21.007
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US/MH PN Name 1.000 1 1.001 2 1.002 3 2.000 4 2.001 5	Climate Climate Storm 60 Winter 60 Winter 60 Winter 60 Winter	n(s) (mir (s) (year Change (Return C Period (30 30 30	<pre>climate +0%</pre>	First (X)	20, 240, 36 First (Y)	0, 480, First	960, 144 30, 100 0, 40 (Z) Overfl	0 0 0 0 Water Level (m) 49.734 49.739 21.007
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US/MH PN Name 1.000 1 1.001 2 1.002 3 2.000 4 2.001 5 2.002 6	Storm 60 Winter 60 Winter 60 Winter 60 Winter 60 Winter 60 Winter 60 Winter 80 Winter	n(s) (mir (s) (year Change (Return C Period (30 30 30 30 30 30 30 5100ded	<pre>15, 15, 15, 15, 15, 15, 15, 15, 15, 15,</pre>	First (X) Surcharge	20, 240, 36 First (Y) Flood Half Drain	0, 480, First Overfl Pipe	960, 144 30, 100 0, 40 (Z) Overfl	0 0 0 0 Water Level (m) 49.734 49.739 21.007 49.737 49.744 21.009
US/MH PN Name 1.000 1 1.001 2 1.002 3 2.000 4 2.001 5	Storm 60 Winter 60 Winter 60 Winter 60 Winter 60 Winter 60 Winter 60 Winter	n(s) (mir (s) (year Change (Return C Period (30 30 30 30 30 30 30 5100ded	<pre>15, 15, 15, 15, 15, 15, 15, 15, 15, 15,</pre>	First (X)	20, 240, 36 First (Y) Flood	0, 480, First Overfl	960, 144 30, 100 0, 40 (Z) Overfl	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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US/MH PN Name 1.000 1 1.001 2 1.002 3 2.000 4 2.001 5 2.002 6 US/MH PN Name 1.000 1 1.000 1 1.001 2 1.002 3	Storm Climate Storm 60 Winter 60 Winter 60 Winter 60 Winter 60 Winter 80 Winter Surcharged Depth (m) -0.066 -0.051 -0.093	n(s) (mir (s) (year Change (Return C Period (30 30 30 30 30 30 30 30 30 30 30 30 30	<pre>Limate Change +0% +0% +0% +0% +0% +0% +0% Cap. 0.08 0.08 0.01</pre>	First (X) Surcharge Overflow (1/s)	20, 240, 36 First (Y) Flood Half Drain Time (mins) 50	<pre>0, 480, First Overfl Pipe Flow (1/s) 0.3 0.3 0.3</pre>	960, 144 30, 10 0, 4 (Z) Overfl .cw Act. Status FLOOD RISS FLOOD RISS FLOOD RISS OU	Water Water Cow Level (m) 49.734 49.739 21.007 21.007 49.737 49.744 21.009 Level Exceeded K K
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ate 20/	/09/20)24		De	esigned b	v JDi			Micro
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						IADD Factor		2	
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PN 1.000	US/MH Name	urn Period Climate	Change Return	Climate				0, 40 (Z) Overflo	Water ow Level
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1.000 1.001 1.002	US/MH Name 1 2 3	urn Period Climate Storm 60 Winter 60 Winter 60 Winter	Return Period 100 100 100	Climate Change +40% +40% +40%				0, 40 (Z) Overflo	Water Level (m) 49.764 49.781 21.010
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Appendix B – Exceedance Plan



	ALL RELEVAN SPECIALISTS	IT ARCHITECTS, EI DRAWINGS AND S	PECIFICATIONS.	/ITH
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		EXCEEDANCE FLOV EXISTING BUILDING PROPOSED BUILDIN EXISTING ROAD GU	S	
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